



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,992	08/20/2003	Masahiko Monzen	1035-464	5149
23117	7590	09/20/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			DUONG, THOI V	
		ART UNIT	PAPER NUMBER	
		2871		

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/643,992	MONZEN, MASAHIKO
	Examiner	Art Unit
	Thoi V. Duong	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 05 July 2005.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8 and 11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/17/05.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

1. This office action is in response to the Amendment filed July 05, 2005.

Accordingly, claims 1 and 8 were amended, claims 9 and 10 were cancelled, and new claim 11 was added. Currently, claims 1-8 and 11 are pending in this application.

Response to Arguments

2. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-312070 (JP'070) in view of Ishikawa et al. (Ishikawa, USPN 5,258,866).

Re claims 1 and 8, as shown in Fig. 2, JP'070 discloses a liquid crystal display module comprising a flexible substrate 2a, wherein the flexible substrate 2a includes:

a plurality of terminal blocks (G1, G2), each of which has a plurality of electrode terminals 20,

the plurality of terminal blocks including a first terminal block G1 (or G2) and a second terminal block G2 (or G1) having different terminal pitches according to the elongation compensation amounts from the center section to the edge of the flexible substrate (Abstract and paragraph 21).

Re claim 2, JP'070 discloses that, per terminal block, due to changing the pitch between terminal electrodes, a line width and a space width of the terminal electrodes are so set as to absorb accumulated elongation and misalignment caused by the thermal compression bonding (paragraph 21).

Re claim 3, the first terminal block G1 has a terminal pitch smaller than a terminal pitch of the second terminal block G2 since the first terminal block G1 is away from the center section of the flexible substrate (paragraph 21);

a ratio of the line width over the terminal pitch, of the second terminal block is smaller than a ratio of the line width over the terminal pitch, of the first terminal block since the line width is the same in both first and second terminal blocks G1 and G2.

However, JP'070 does not disclose that the pitch of the first terminal block corresponds to a first predetermined pitch adjusted by a first post-thermal-compression-elongation compensation amount that is dependent on the first predetermined pitch, and the pitch of the second terminal block corresponds to a second predetermined pitch adjusted by a second post-thermal-compression-elongation compensation amount that is dependent on the second predetermined pitch.

As shown in Figs. 1 and 3, Ishikawa develops a connecting method for connecting electrode terminals of a liquid crystal display element and lead terminals of a flexible board to each other by a pressuring and heating step, wherein the predetermined terminal pitch p of the lead electrodes 10 of a flexible board 7 before a pressurizing and heating step is adjusted by a formula $p = P/(1+\alpha)$, where " α " is the elongation percentage (or elongation compensation amount) of a base film 8 of the

flexible board 7, and P is the terminal pitch of the electrode terminals 5 of the liquid crystal display element (see Abstract and col. 4, lines 34-41). Accordingly, the predetermined terminal pitch p is also dependent on the elongation compensation amount of the base film of the flexible board.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display module of JP'070 with the teaching of Ishikawa by adjusting the pitch of the first terminal block corresponding to a first predetermined pitch by a first post-thermal-compression-elongation compensation amount that is dependent on the first predetermined pitch, and the pitch of the second terminal block corresponding to a second predetermined pitch adjusted by a second post-thermal-compression-elongation compensation amount that is dependent on the second predetermined pitch to accurately register the terminal blocks of the flexible substrate to the electrode terminals of the liquid crystal display element (col. 2, lines 28-33).

5. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-312070 (JP'070) in view of Ishikawa et al. (Ishikawa, USPN 5,258,866) as applied to claims 1-3 and 8 and further in view of Chung et al. (Chung, USPN 6,583,845 B1).

JP'070 in view of Ishikawa discloses a liquid crystal display module comprising a flexible substrate that is basically the same as that recited in claims 4-7 except for a dummy terminal block in non-formation areas in which the electrode terminals are not provided.

Re claim 4, as shown in Fig. 6, Chung discloses a flexible substrate 42 (base film TCP) comprising:

a dummy terminal block 50 in non-formation areas in which the electrode terminals of the terminal block 46 are not provided, the dummy terminal block 50 having a plurality of dummy electrode terminals,

wherein, re claim 5, the dummy electrode terminals of the dummy terminal block 50 are identical with the electrode terminals of the terminal block 46 (col. 2, lines 12-28);

wherein, re claim 6, the dummy electrode terminals of the dummy terminal block 50 have the same terminal pitch as the electrode terminals of the terminal block 46 (col. 2, lines 12-28).

Re claim 7, as shown in Fig. 6, the flexible substrate of Chung comprises:

a dummy terminal block 50 in a non-formation area in which the electrode terminals of the terminal block 46 are not provided, the dummy terminal block 50 including a plurality of dummy electrode terminals having the same terminal pitch as the terminal block 46 (col. 2, lines 12-28).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the flexible substrate of JP'070 with the teaching of Chung by forming a dummy terminal block in non-formation areas in which the electrode terminals are not provided so as to increase the bonding force between the flexible substrate and the liquid crystal panel (col. 2, lines 17-20).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2000-312070 (JP'070) in view of Ishikawa et al. (Ishikawa, USPN 5,258,866) as applied to claims 1-3 and 8 and further in view of Shiba et al. (Shiba, USPN 5,684,555).

The liquid crystal display module of JP'070 as modified in view of Ishikawa above includes all that is recited in claim 11 except for the first terminal block comprising electrodes corresponding to segment electrode terminals, and the second terminal block comprising electrodes corresponding to common electrode terminals.

As shown in Figs. 1 and 3, Shiba discloses a liquid crystal display module comprising a flexible substrate 711 having a first terminal block comprising electrodes corresponding to segment electrode terminals 761-764, and the second terminal block 821a comprising electrodes corresponding to common electrode terminals 751 (col. 5, lines 44-60).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display module of JP'070 with the teaching of Shiba by forming the first terminal block comprising electrodes corresponding to segment electrode terminals, and the second terminal block comprising electrodes corresponding to common electrode terminals so as to prevent the wiring defect and improve manufacturing yield (col. 6, lines 36-41).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



09/14/2005



ROBERT KIM
SUPervisory Patent Examiner